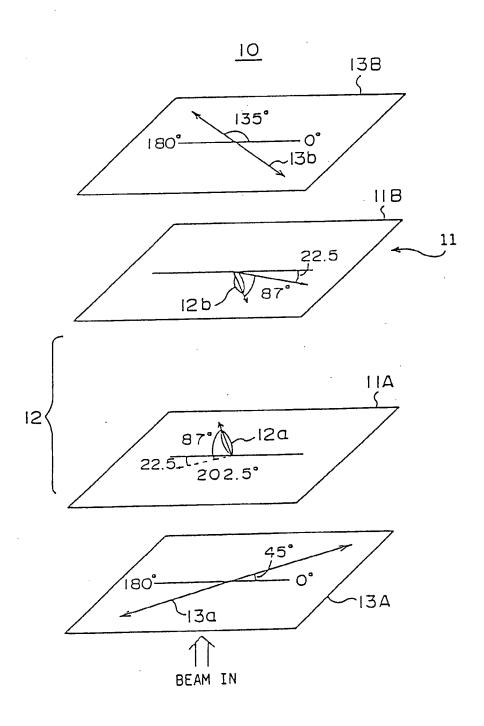
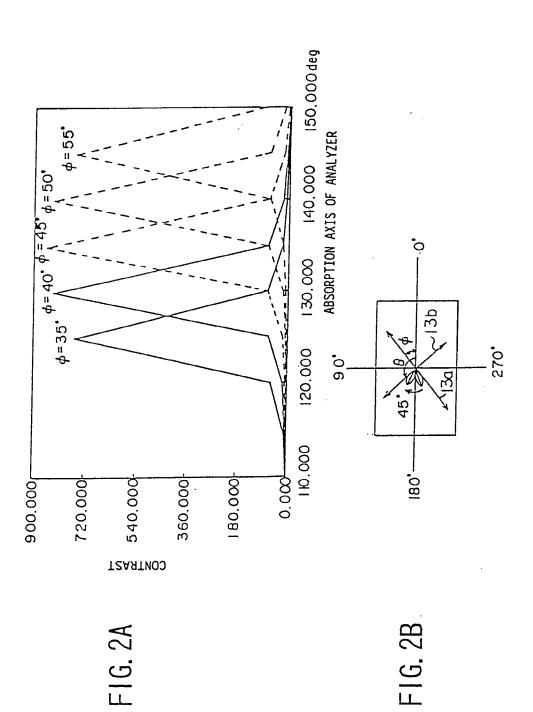
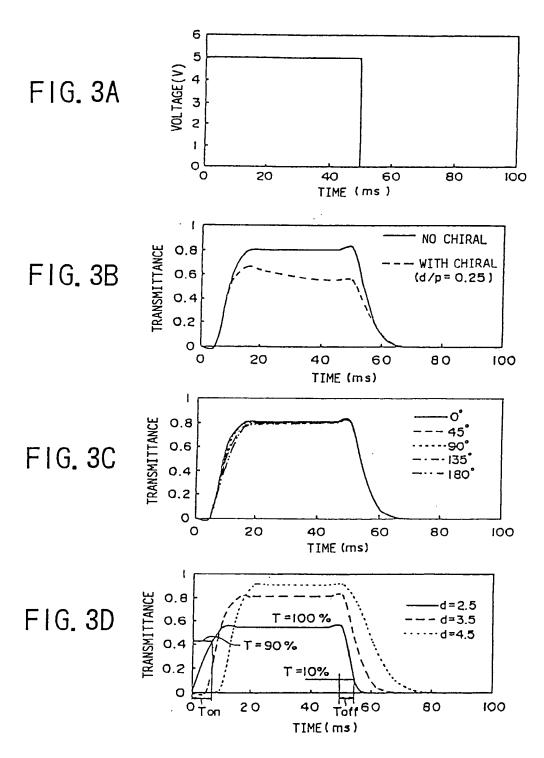


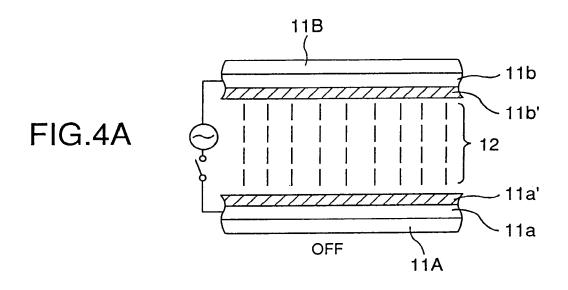
FIG. 1

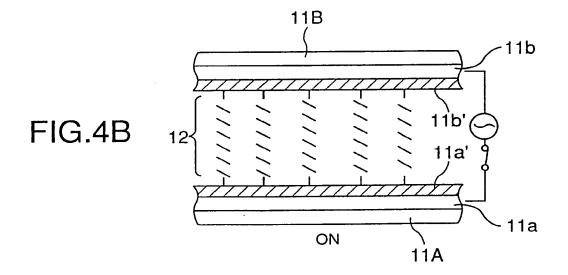


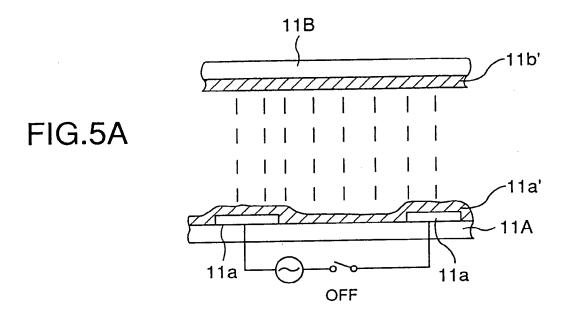


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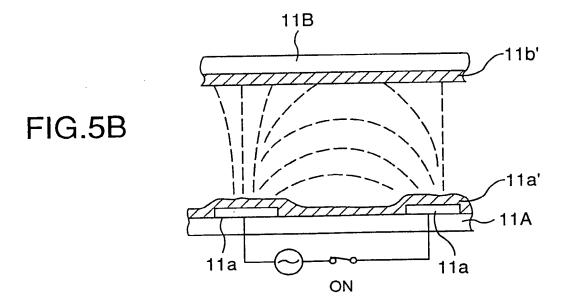
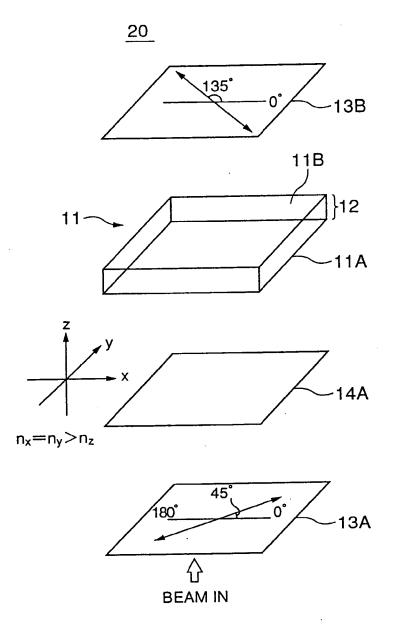


FIG.6A



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FIG. 6B

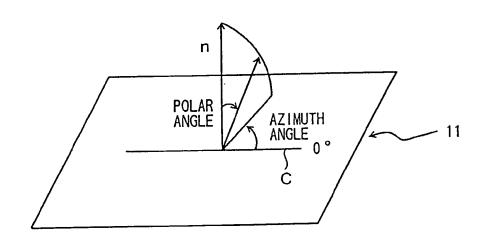
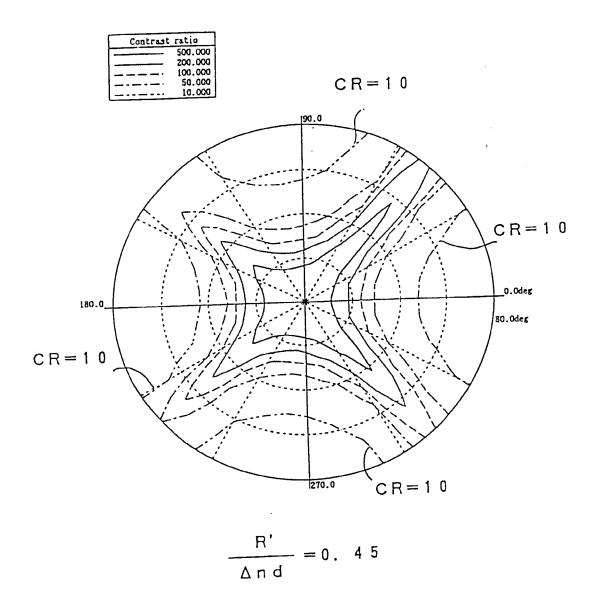


FIG. 7



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FIG.8

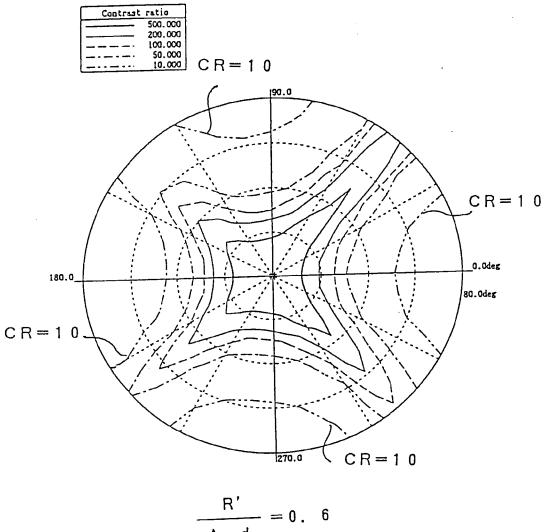


FIG. 9

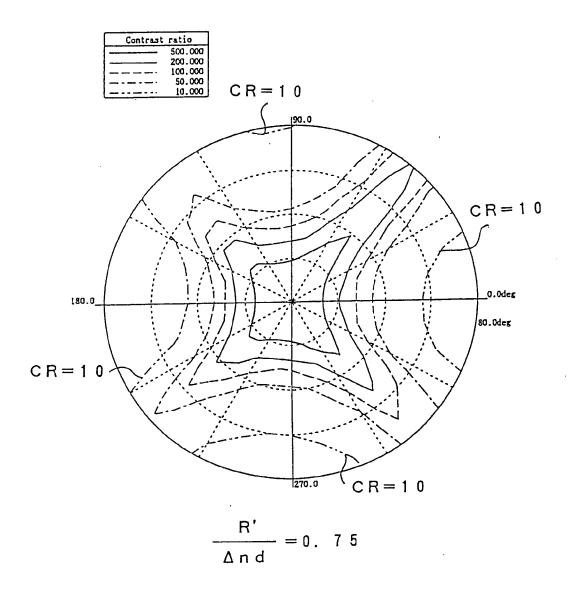
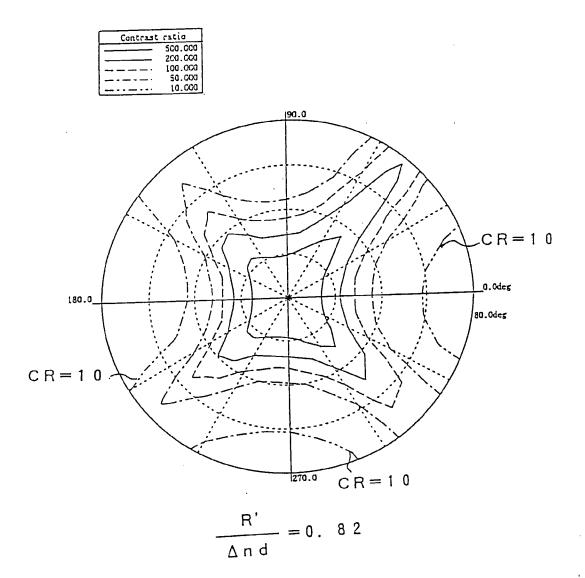


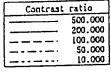
FIG. 10

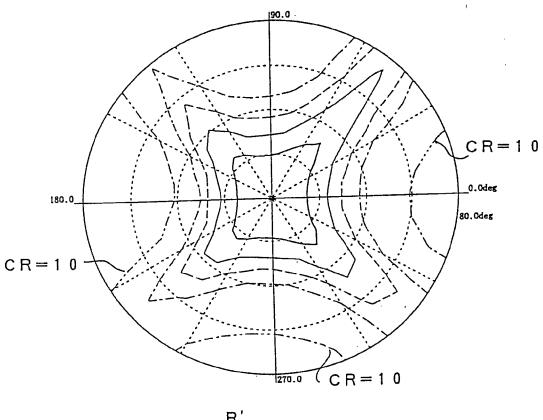


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FIG. 11





$$\frac{R'}{\Delta n d} = 0.90$$

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FIG. 12

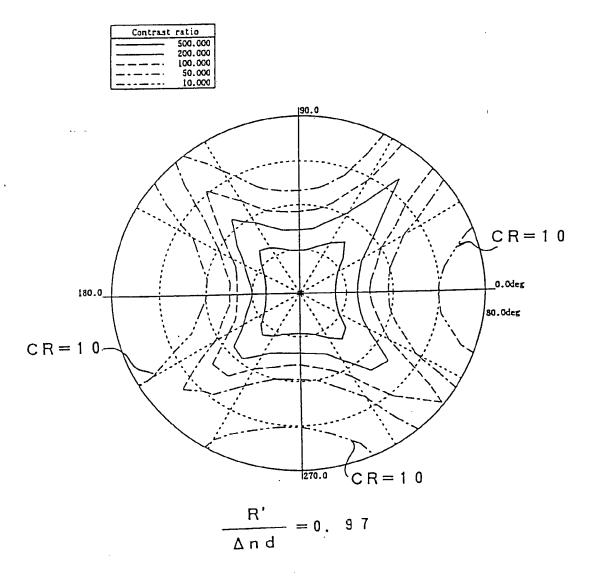


FIG. 13

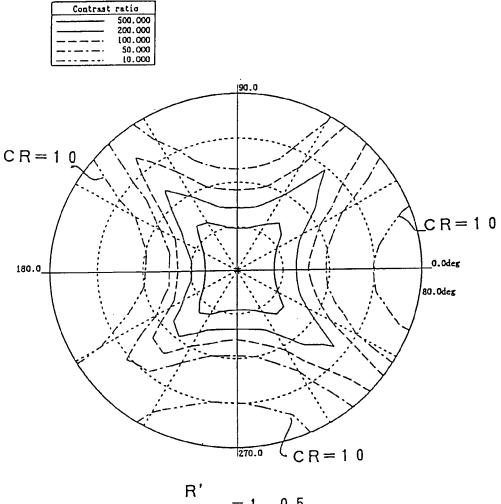


FIG. 14

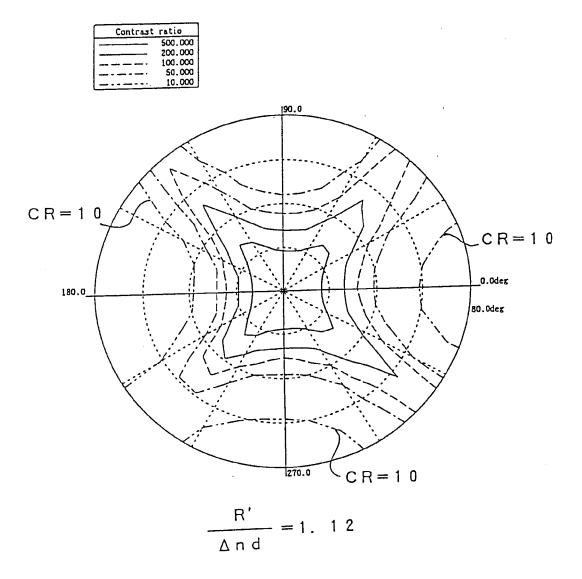


FIG. 15

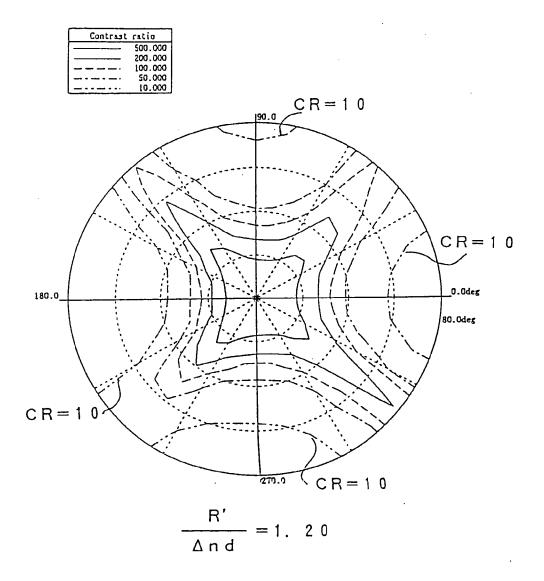


FIG. 16

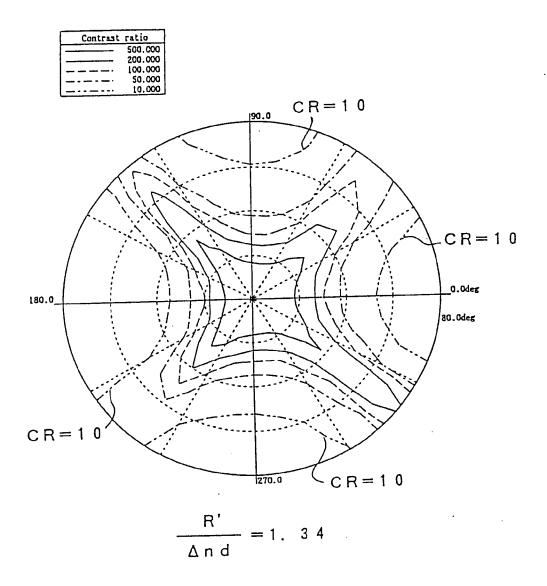
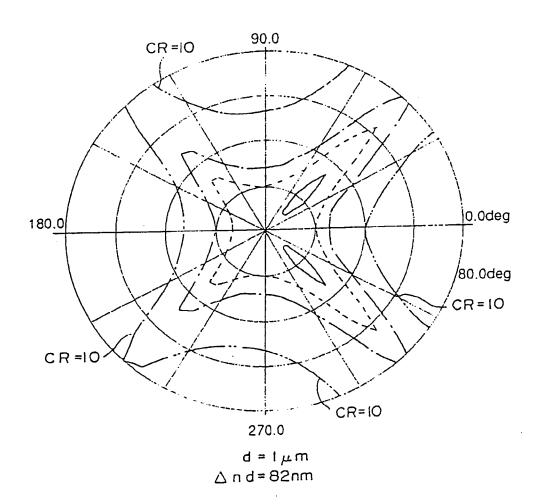


FIG. 17

| Contrast | ratio |
|----------|---------|
| | 500.000 |
| | 200.000 |
| | 100.000 |
| — · — | 50.000 |
| | 10.000 |



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FIG. 18

| Contras | t ratio |
|---------|---------|
| | 500.000 |
| | 200.000 |
| | 100.000 |
| ·_ | 50.000 |
| | 10.000 |

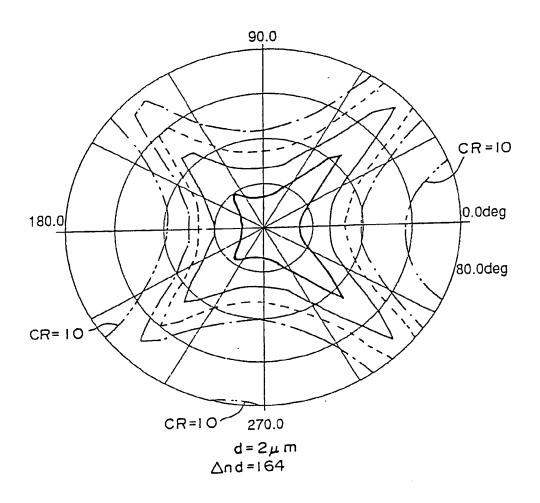


FIG. 19

| Contrast | ratio |
|------------|---------|
| | 500.000 |
| | 200.000 |
| | 100.000 |
| | 50.000 |
| — — | 10.000 |

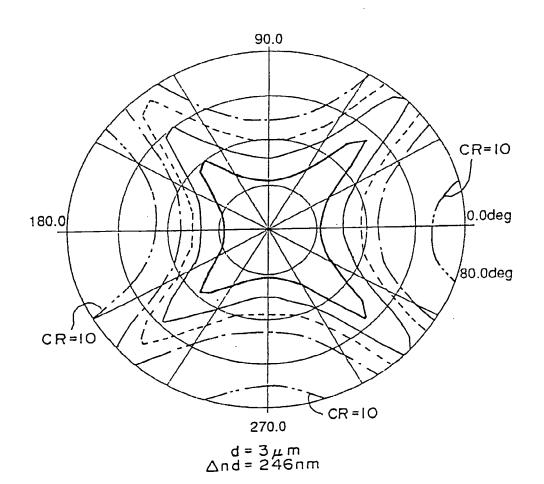
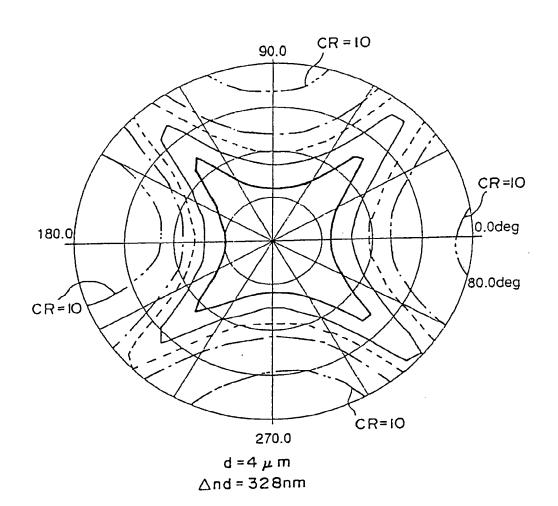


FIG. 20

| Contras | ratio |
|---------|---------|
| | 500.000 |
| | 200.000 |
| | 100.000 |
| | 50.000 |
| | 10.000 |

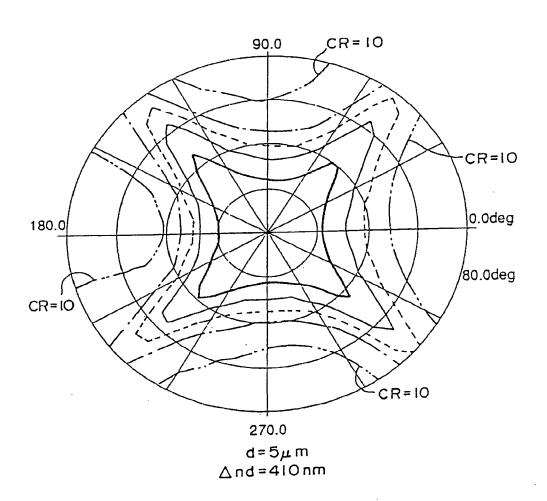


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FIG. 21

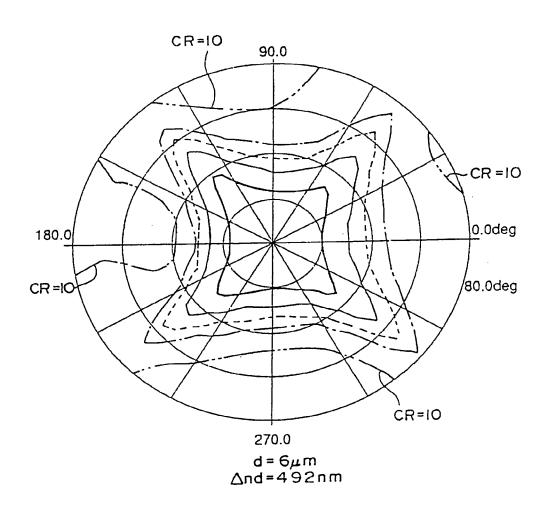
| Contrast | ratio |
|----------|---------|
| | 500.000 |
| | 200.000 |
| | 100.000 |
| | 50.000 |
| | 10.000 |



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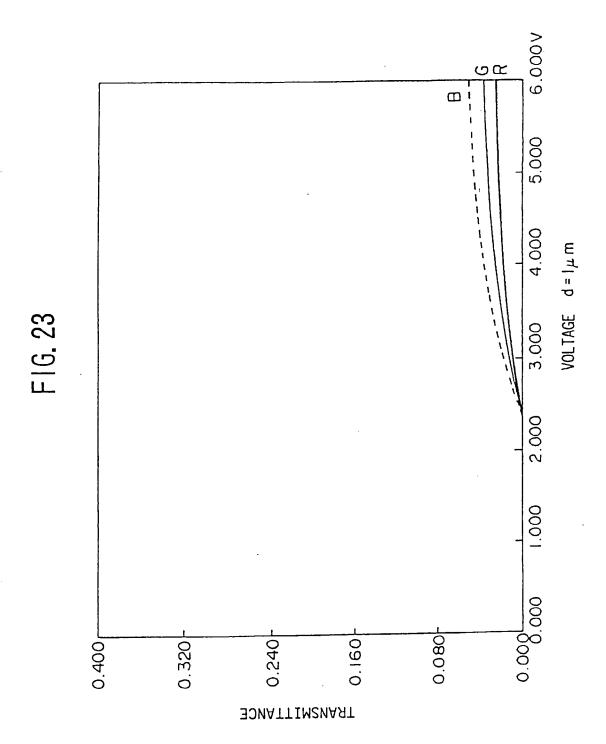
FIG. 22

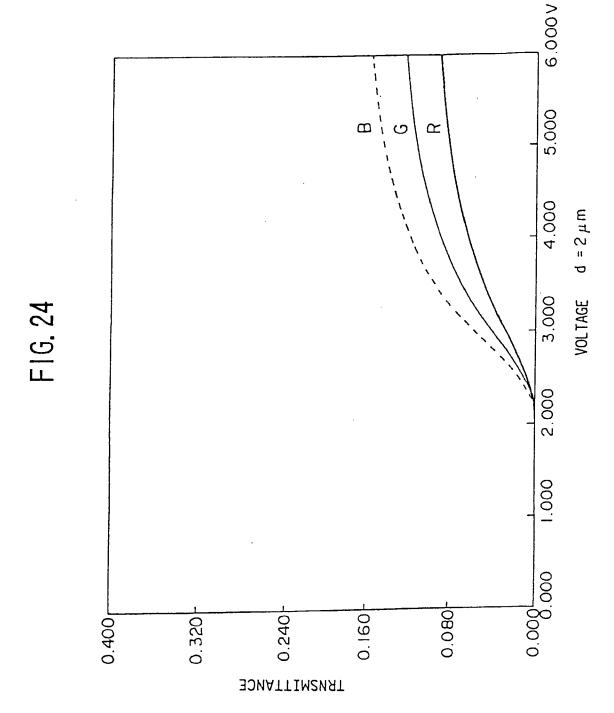
| Contrast | ratio |
|-------------|---------|
| | 500.000 |
| | 200.000 |
| | 100.000 |
| | 50.000 |
| | 10.000 |

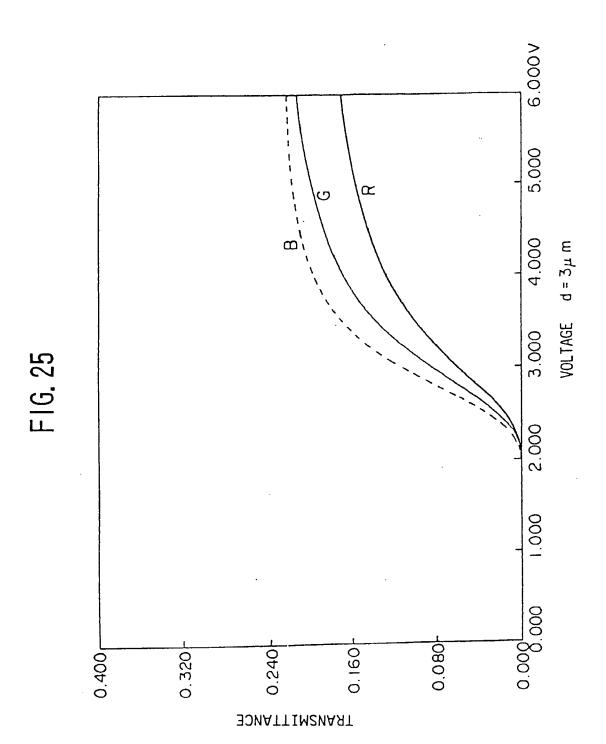


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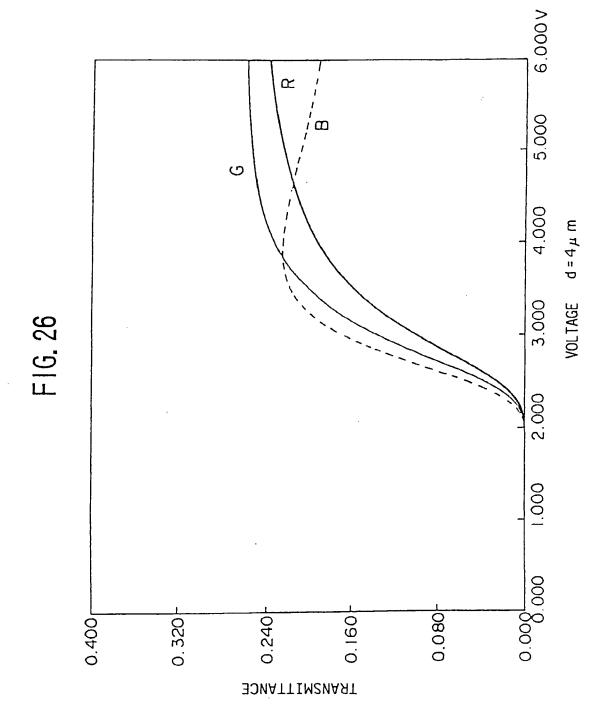
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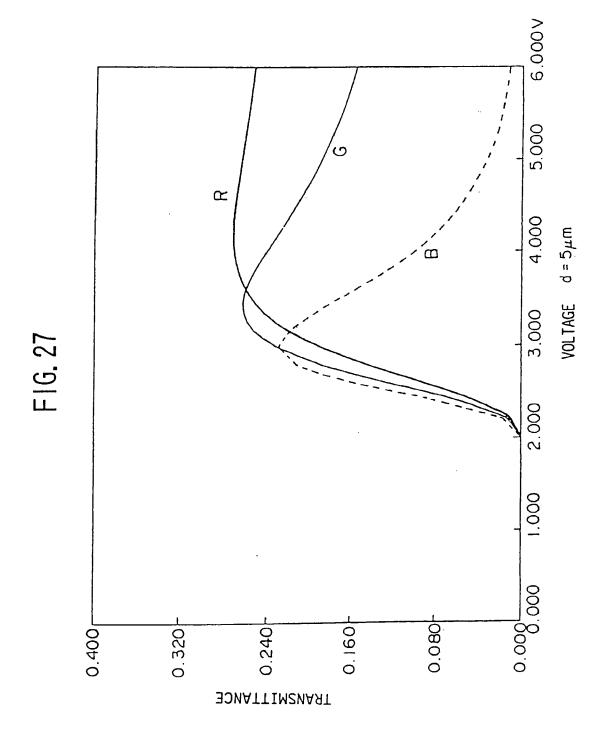






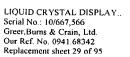
(312) 360-0080





0.320





0.080

0.160

0.240

TRANSMITTANCE

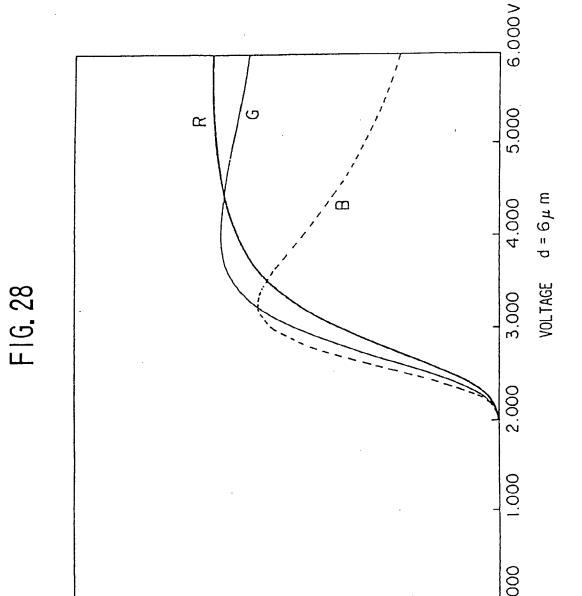
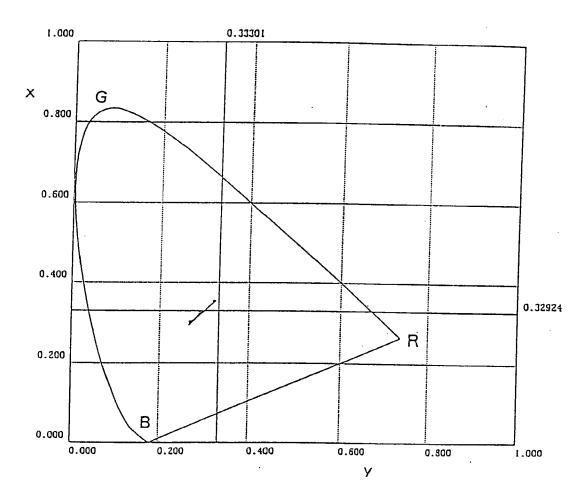


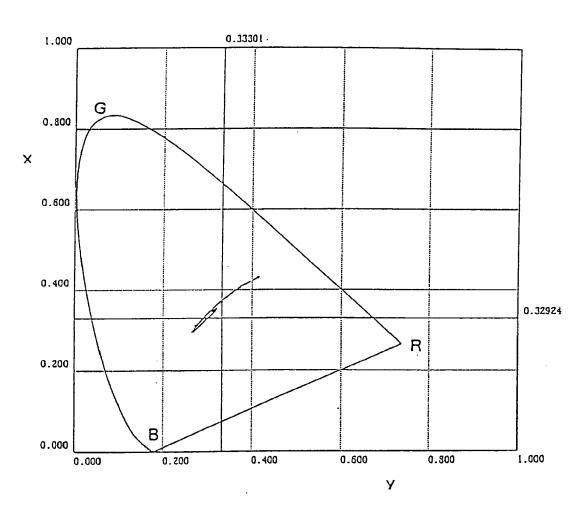
FIG. 29



 $d = 1 \mu m$

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FIG. 30

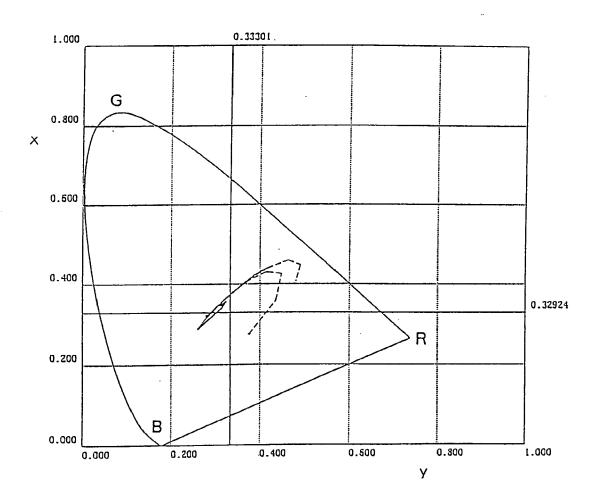


 $d = 3 \mu m$

LIQUID CRYSTAL DISPLAY.. Serial No.: 10/667,566 Greer,Burns & Crain, Ltd. Our Ref. No. 0941.68342 Replacement sheet 32 of 95

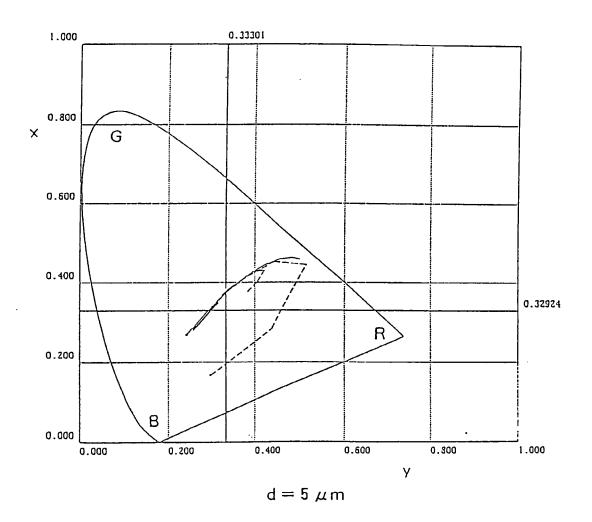
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FIG. 31



 $d = 4 \mu m$

FIG. 32



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FIG. 33

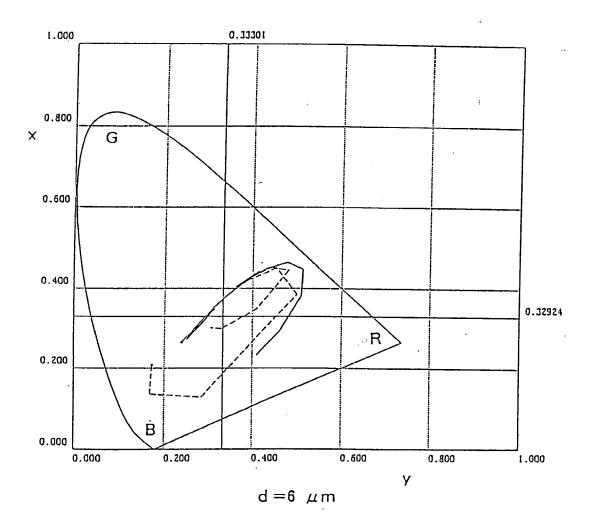
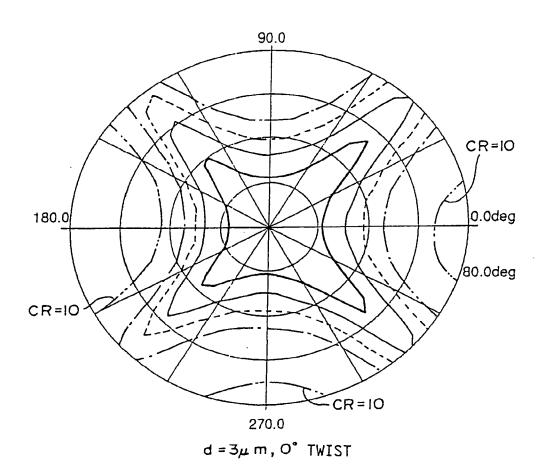


FIG. 34

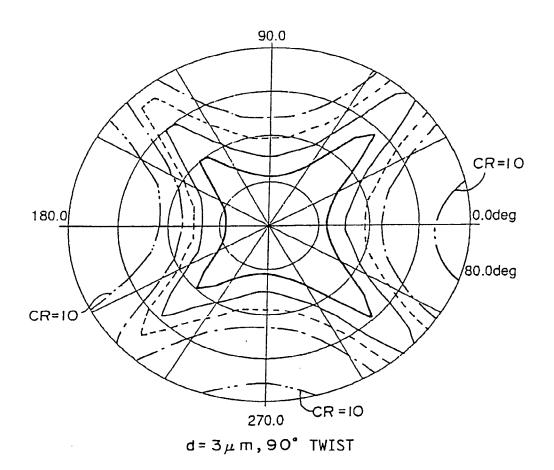
| Contrast | ratio |
|-------------|---------|
| | 500.000 |
| | 200.000 |
| | 100.000 |
| | 50.000 |
| | 10.000 |



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FIG. 35

| Contras | t ratio |
|---------|---------|
| | 500.000 |
| | 200.000 |
| | 100.000 |
| | 50.000 |
| | 10.000 |

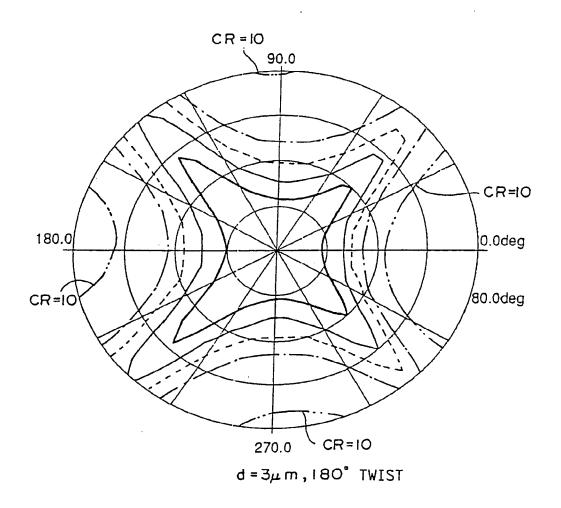


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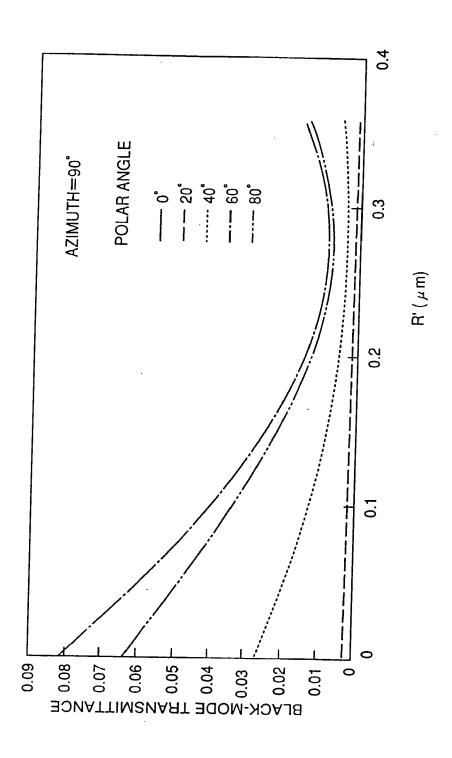
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FIG. 36

| Contrast ratio |
|-----------------|
| 500.000 |
| 200.000 |
| 1 <u>00.000</u> |
| |
| |

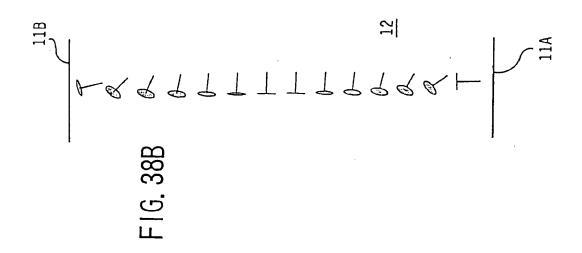






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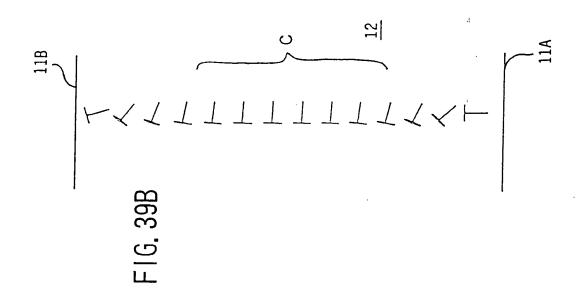
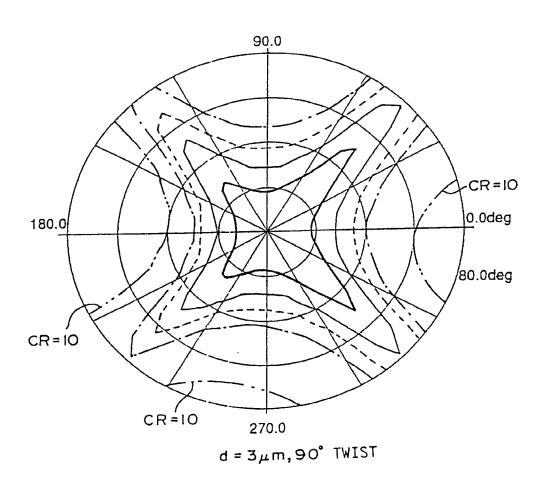


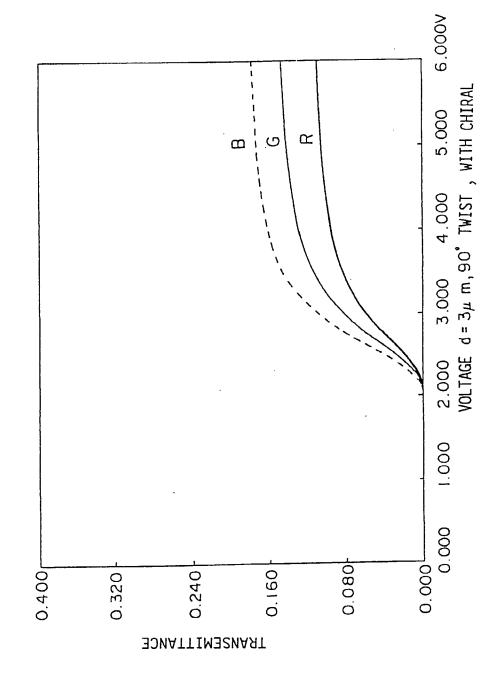
FIG. 40

| Contrast | ratio |
|----------|---------|
| | 500.000 |
| | 200.000 |
| | 100.000 |
| | 50.000 |
| | 10.000 |

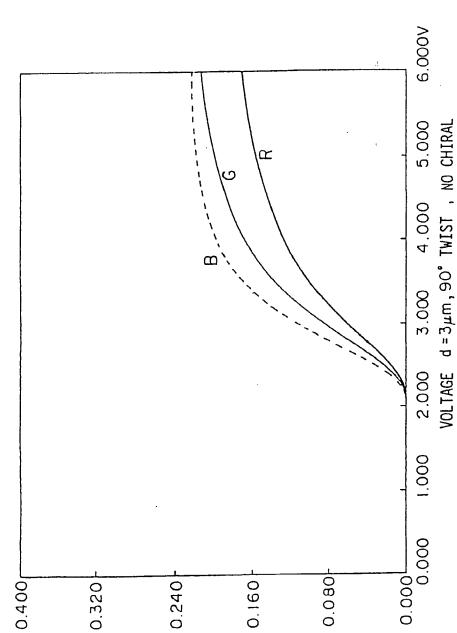


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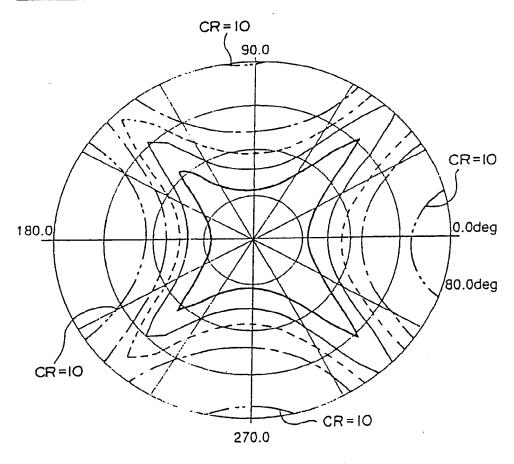


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FIG. 43

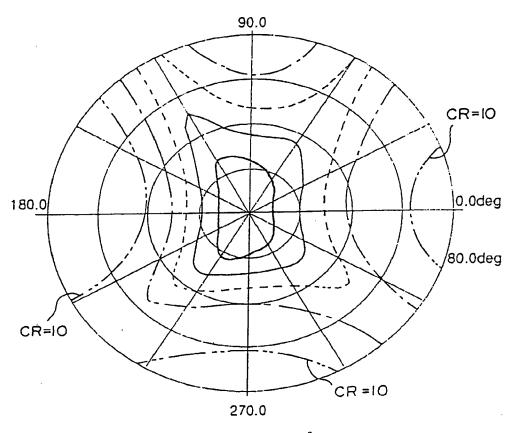
| Contrast | ratio |
|----------|---------|
| | 500.000 |
| | 200.000 |
| | 100.000 |
| | 50.000 |
| | 10.000 |



PRETILT= 89.99° CELL= 3μ m, 45° TWIST

FIG. 44

| Contrast | ratio |
|----------|---------|
| 5 | 00.000 |
| _ | 000.009 |
| 1 | 00.000 |
| | 50.000 |
| | 10.000 |

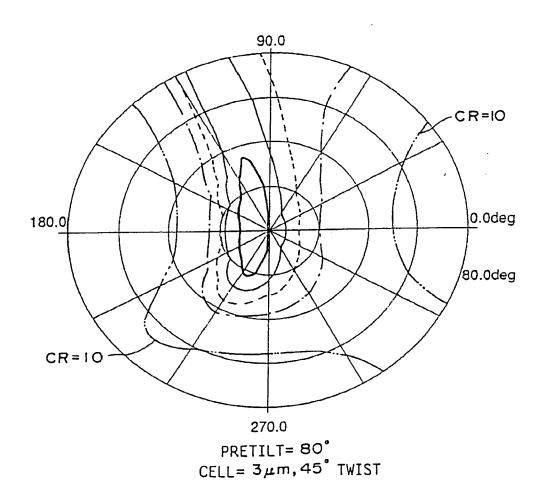


PRETILT= 85° CELL=3μm, 45° TWIST

10/30/03

FIG. 45

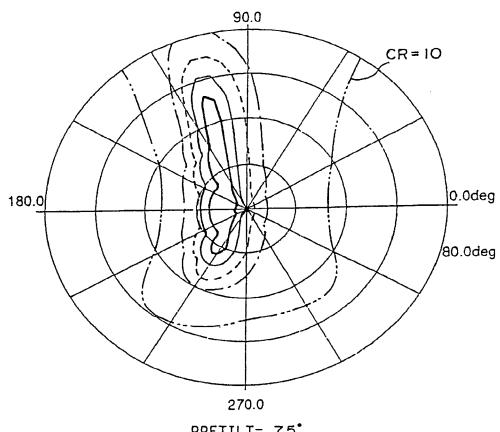
| Contrast | ratio |
|----------|---------|
| | 500.000 |
| | 200.000 |
| | 100.000 |
| | 10.000 |



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FIG. 46

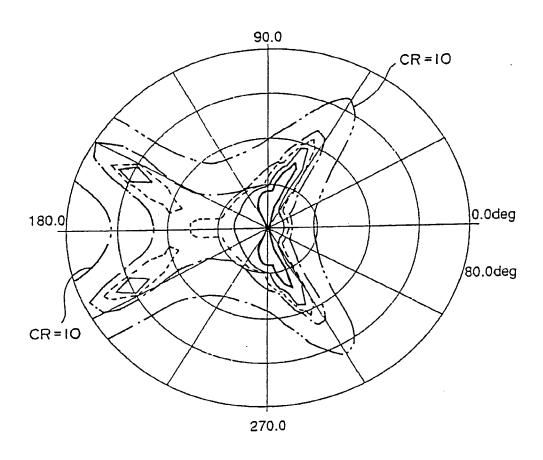
| Contrast | ratio |
|----------|---------|
| | 500.000 |
| | 200.000 |
| | 100.000 |
| | 50.000 |
| | 10.000 |



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FIG. 47 PRIOR ART

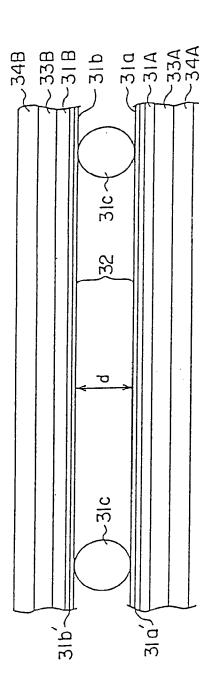
| Contrast | ratio |
|----------|---------|
| | 500.000 |
| | 200.000 |
| | 100.000 |
| | 50.000 |
| | 10.000 |



LIQUID CRYSTAL DISFLAY.. Serial No.: 10/667,566 Greer,Burns & Crain, Ltd. Our Ref. No. 0941.68342 Replacement sheet 49 of 95

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F16. 48



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FIG. 49A

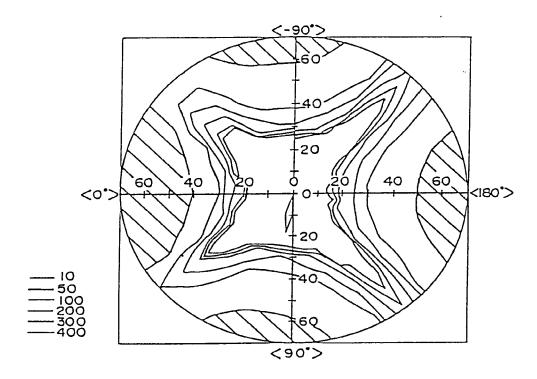


FIG. 49B

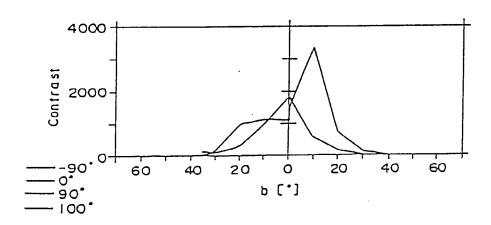
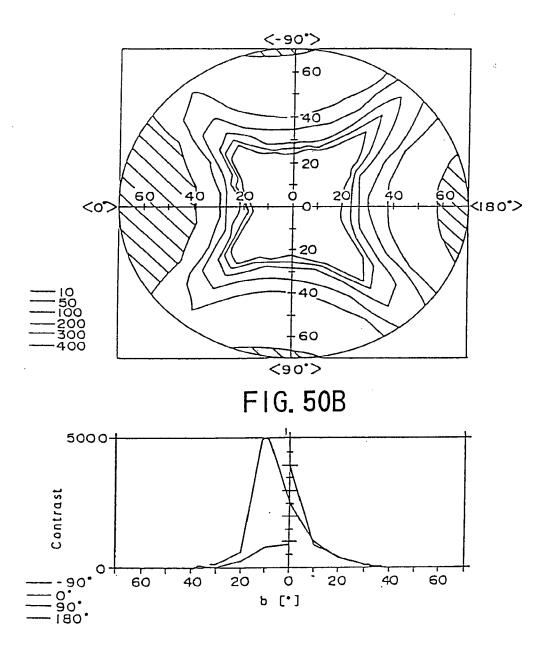


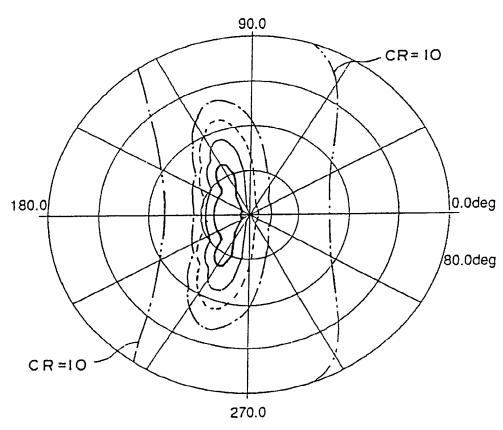
FIG. 50A



LIQUID CRYSTAL DISPLAY.. Serial No.: 10/667,566 Greer,Burns & Crain, Ltd. Our Ref. No. 0941,68342 Replacement sheet 52 of 95

FIG. 51

| Contrast | ratio |
|----------|------------------|
| | 500.000 |
| · · | 200.000 |
| | 100.000 |
| | 50.000 10.000 |



PRITILT= 75° CELL= 3μm,45° TWIST

FIG. 52

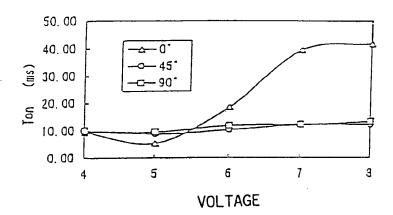


FIG. 53

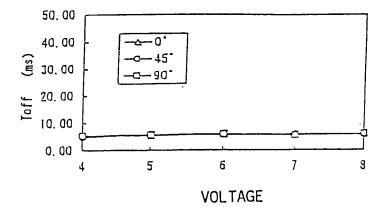
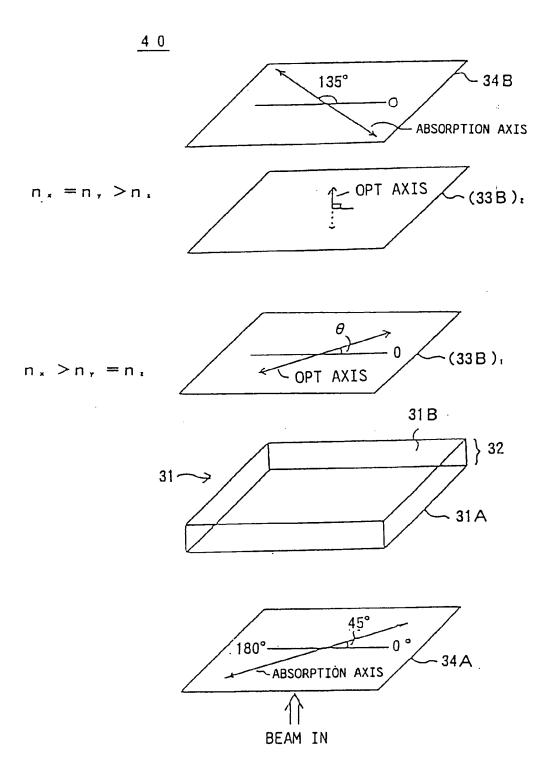
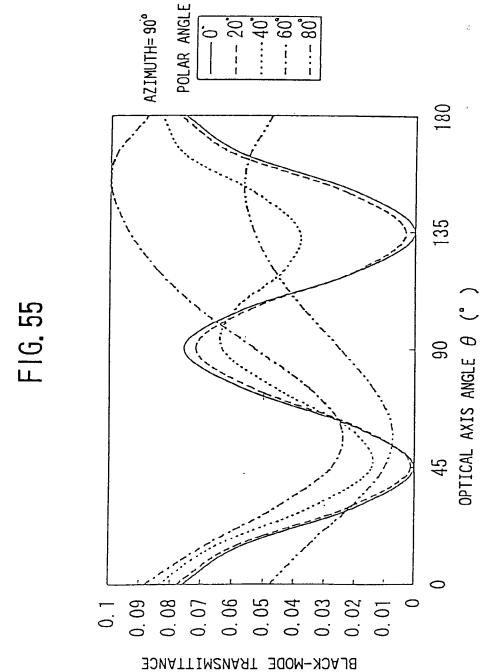


FIG. 54



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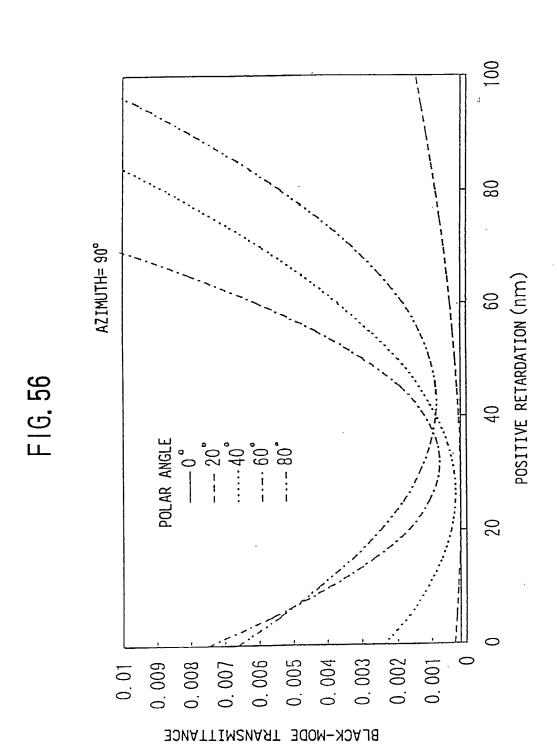
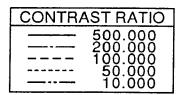
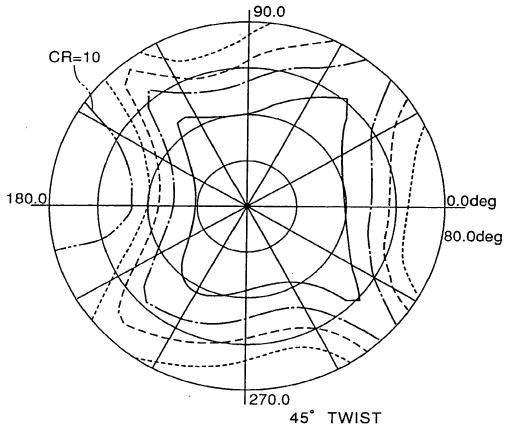


FIG.57





 $d = 3 \mu m$

R'= 240nm

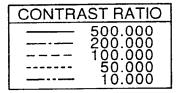
R = 25nm

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FIG.58

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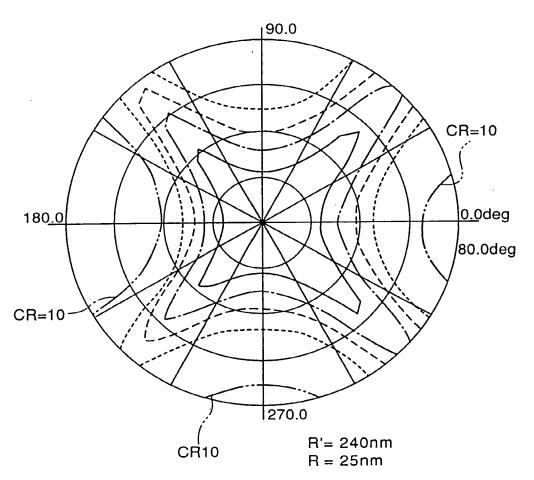
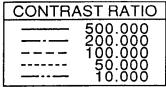
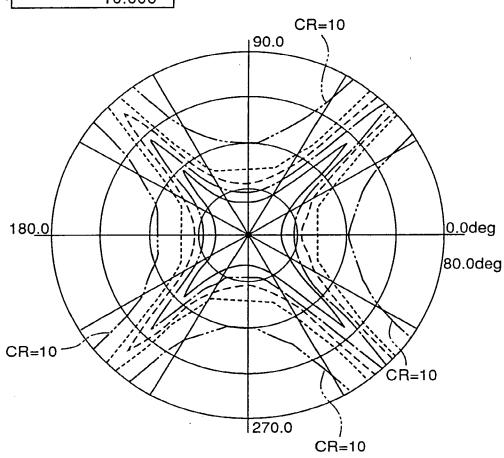


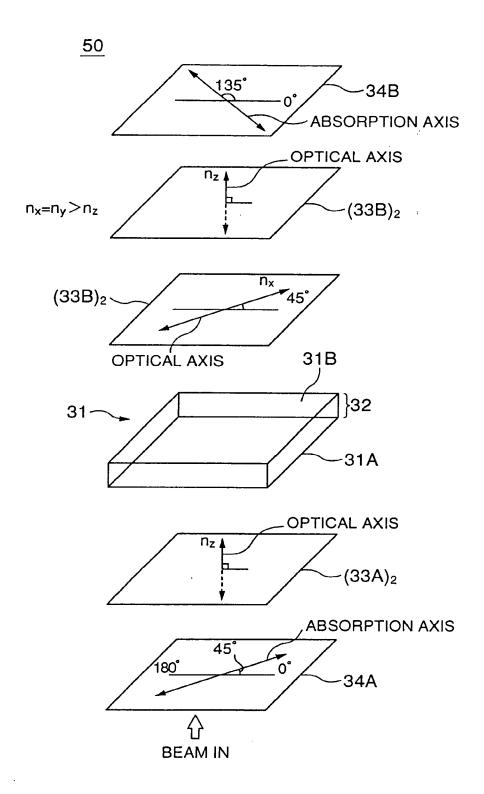
FIG.59





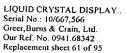
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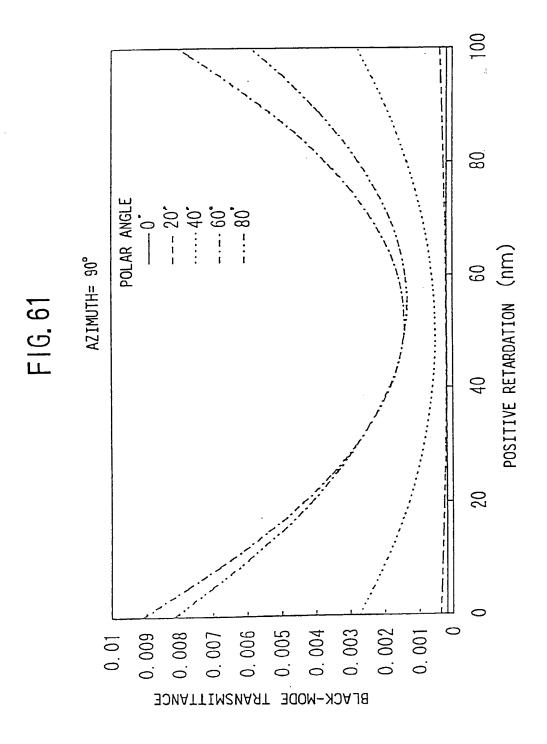
FIG.60



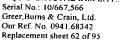
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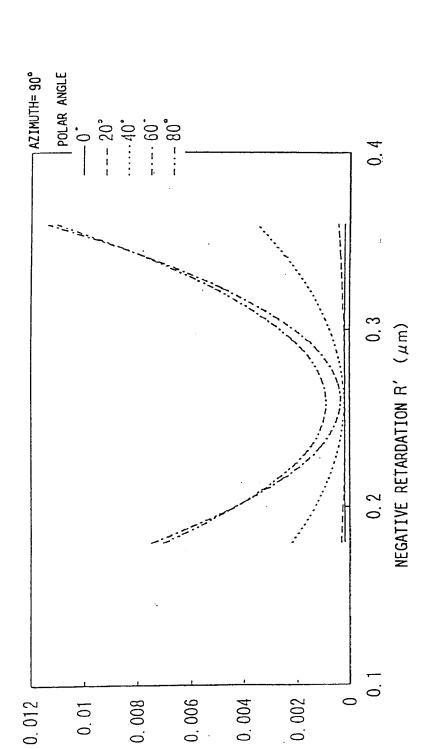
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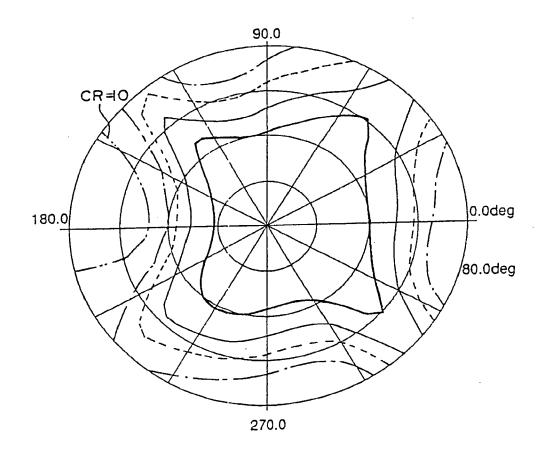




BLACK-MODE TRANSMITTANCE

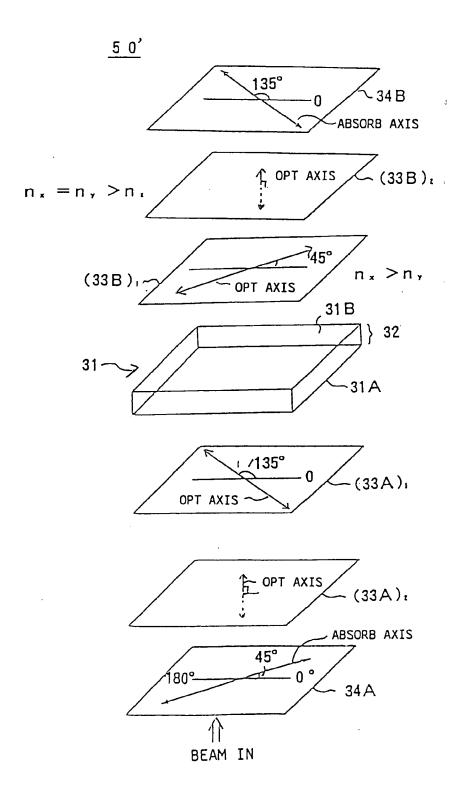
FIG. 63

| Contrast | ratio |
|----------|---------|
| | 500.000 |
| | 200.000 |
| | 100.000 |
| | 50.000 |
| | 10.000 |



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FIG. 64



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FIG. 65

| Contrast | ratio |
|----------|---------|
| | 500.000 |
| | 200.000 |
| | 100.000 |
| | 50.000 |
| | 10.000 |

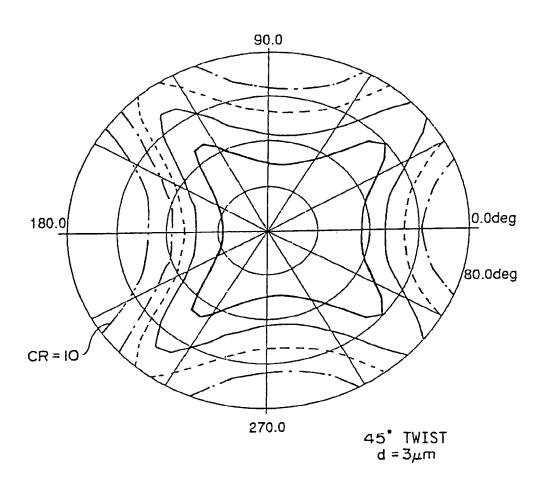
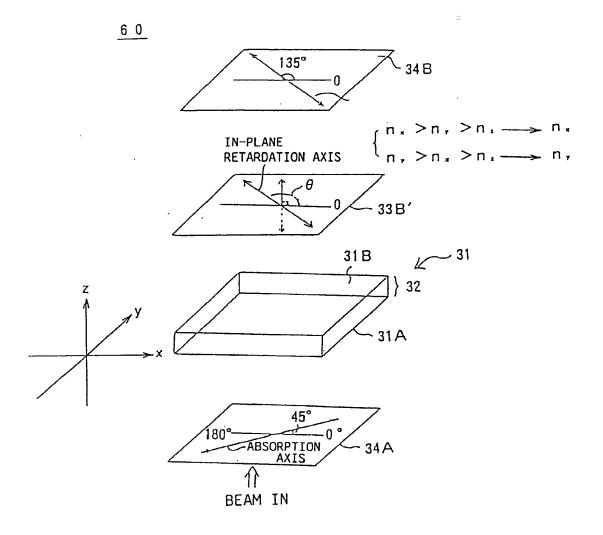


FIG. 66

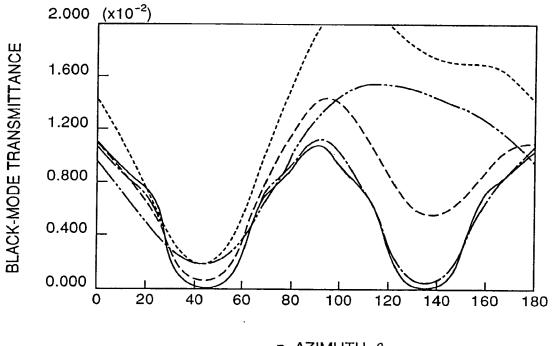


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FIG.67

| VOLT | POLAR | AZIMUTH |
|-----------|-------|---------|
| 0.000 | 0.0 | 90.0 |
| 0.000 | 20.0 | 90.0 |
| 0.000 | 40.0 | 90.0 |
| 0.000 | 60.0 | 90.0 |
| 0.000 | 80.0 | 90.0 |



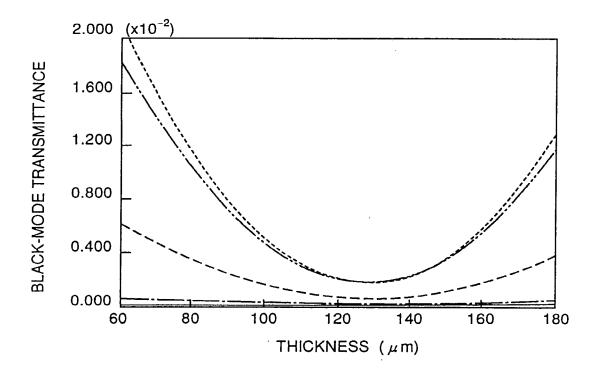
 n_x AZIMUTH θ

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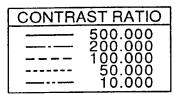
FIG.68

| VOLT | POLAR | AZIMUTH |
|-----------|-------|---------|
| 0.000 | 0.0 | 0.0 |
| 0.000 | 20.0 | 0.0 |
| 0.000 | 40.0 | 0.0 |
| 0.000 | 60.0 | 0.0 |
| 0.000 | 80.0 | 0.0 |



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FIG.69



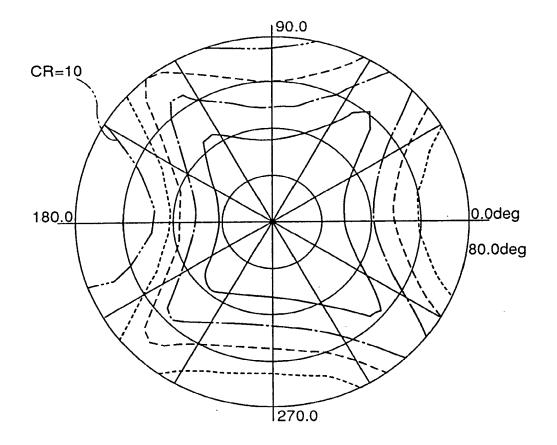
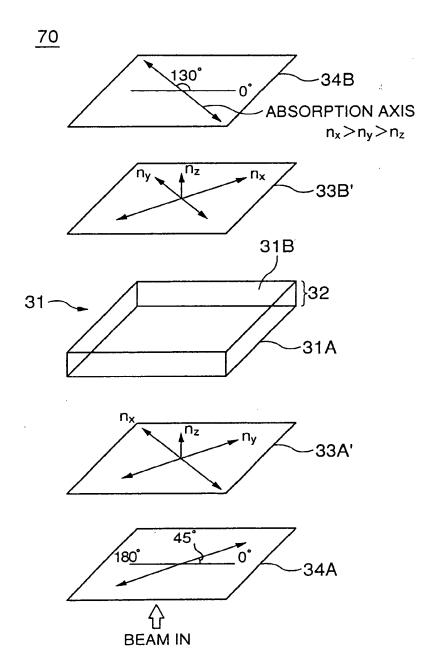


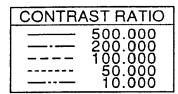
FIG.70



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FIG.71



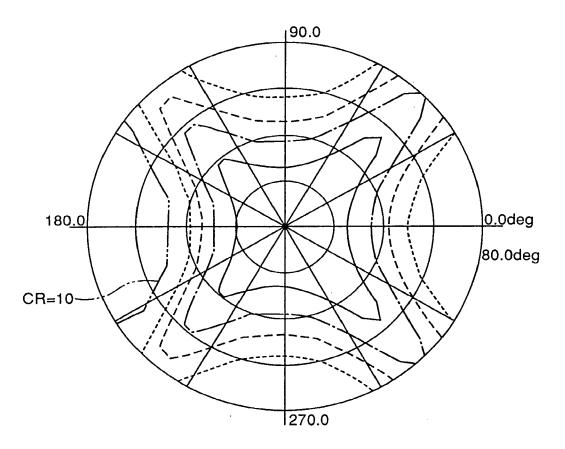
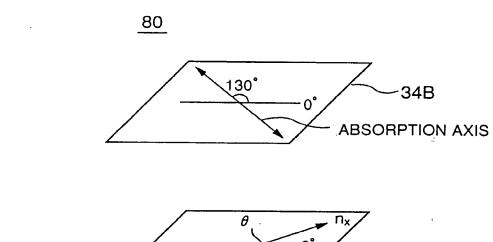
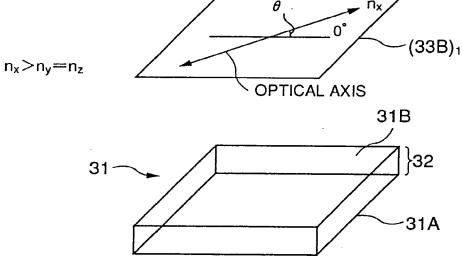


FIG.72





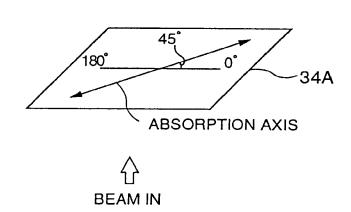
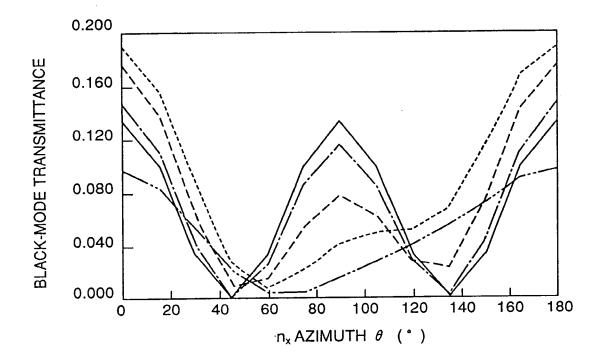


FIG.73

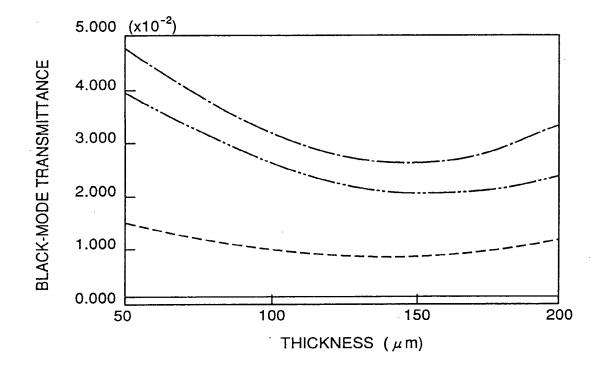
| VOLT | POLAR | AZIMUTH |
|-----------|-------|---------|
| 0.000 | 0.0 | 0.0 |
| 0.000 | 20.0 | 0.0 |
| 0.000 | 40.0 | 0.0 |
| 0.000 | 60.0 | 0.0 |
| 0.000 | 80.0 | 0.0 |



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FIG.74

| VOLT | POLAR | AZIMUTH |
|-----------|-------|---------|
| 0.000 | 0.0 | 0.0 |
| 0.000 | 20.0 | 0.0 |
| 0.000 | 40.0 | 0.0 |
| 0.000 | 60.0 | 0.0 |
| 0.000 | 80.0 | 0.0 |

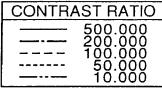


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FIG.75

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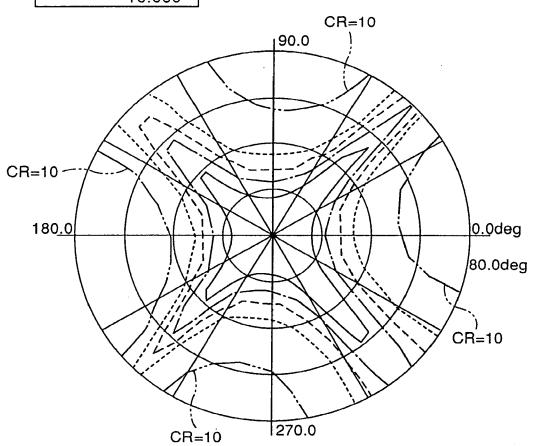
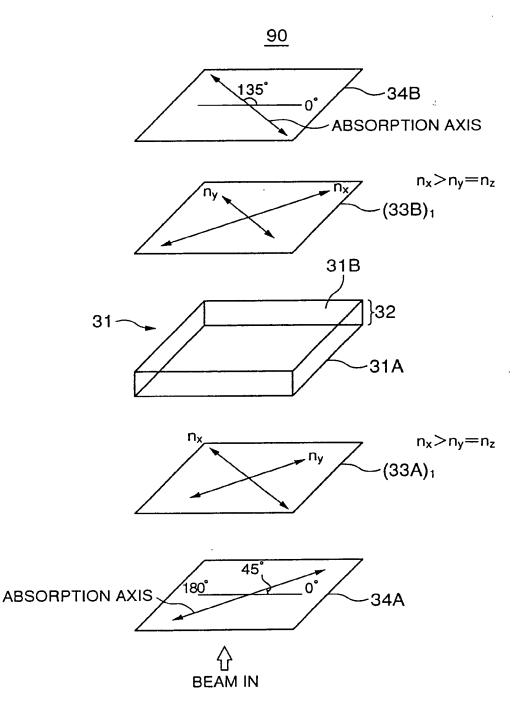


FIG.76



CR=10

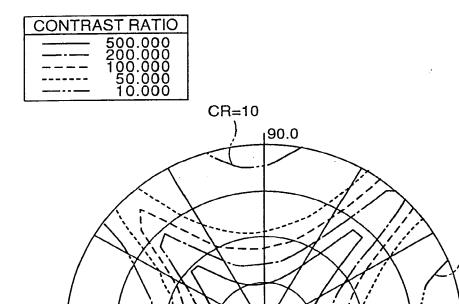
0.0deg

80.0deg

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FIG.77



270.0

CR=10

180<u>.0</u>

CR=10

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FIG.78

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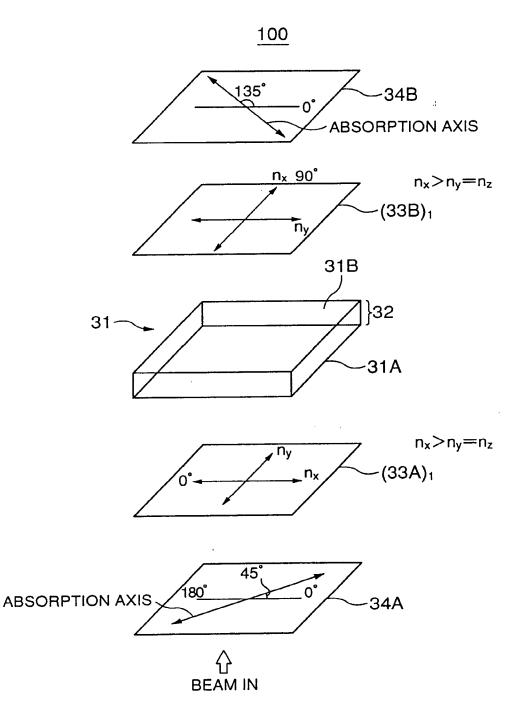
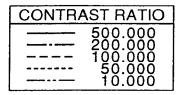
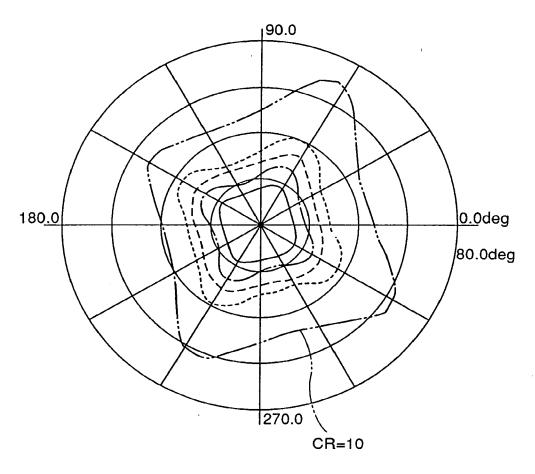


FIG.79





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FIG. 80

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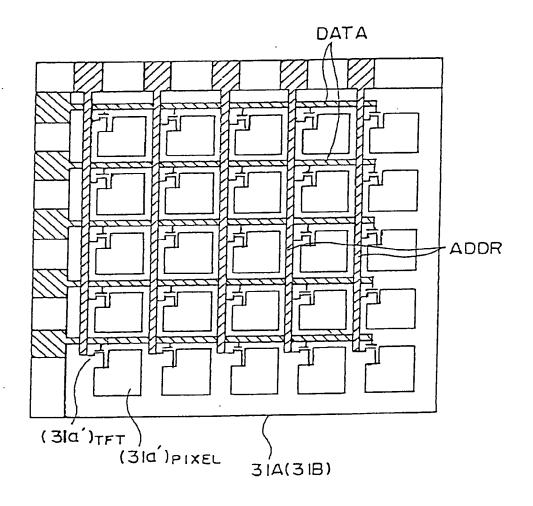
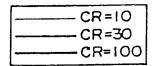
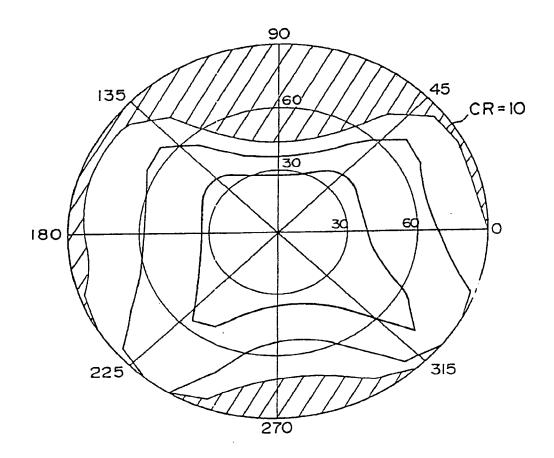
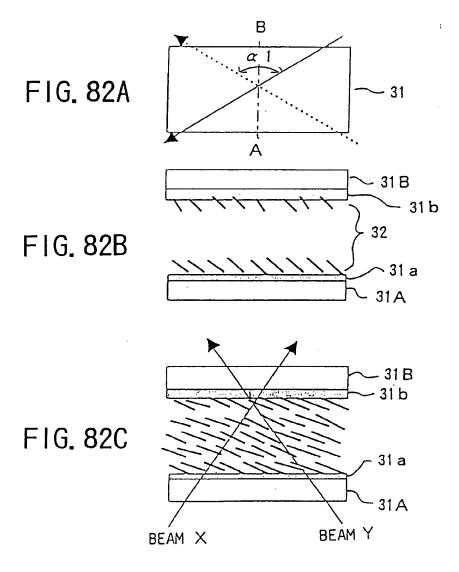


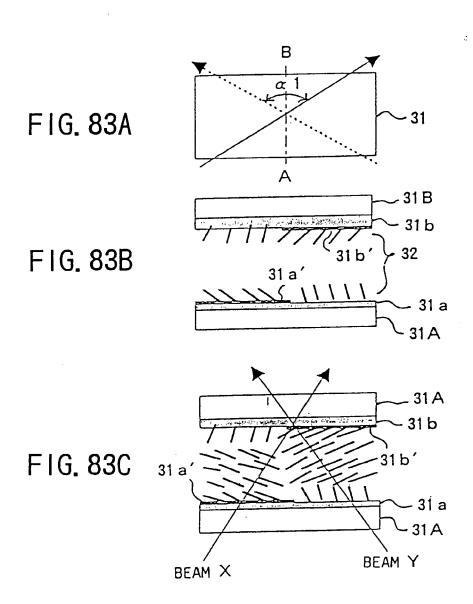
FIG. 81

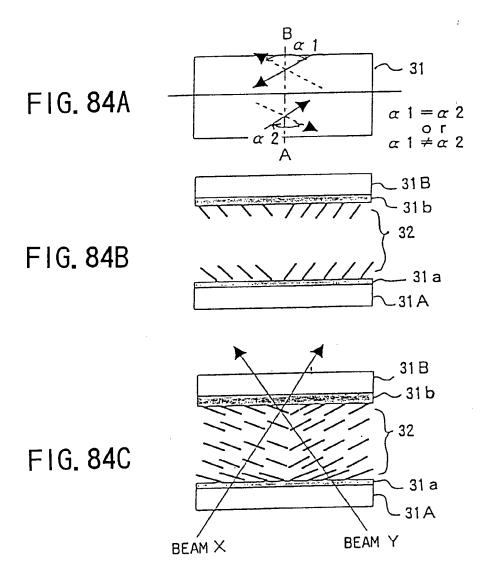






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FIG. 85

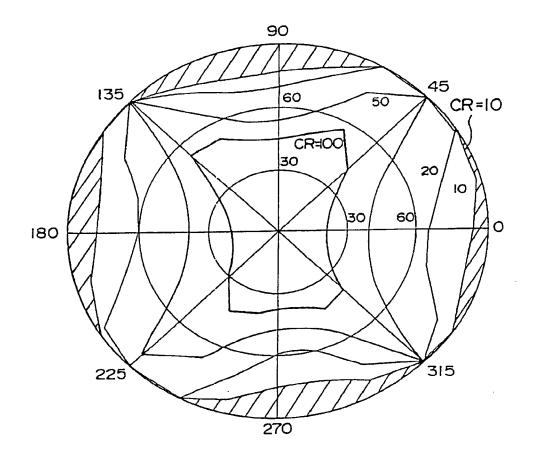


FIG. 86

| Contrast | ratio |
|----------|---------|
| | 500.000 |
| | 200.000 |
| | 100.000 |
| | 50.000 |
| | 10.000 |

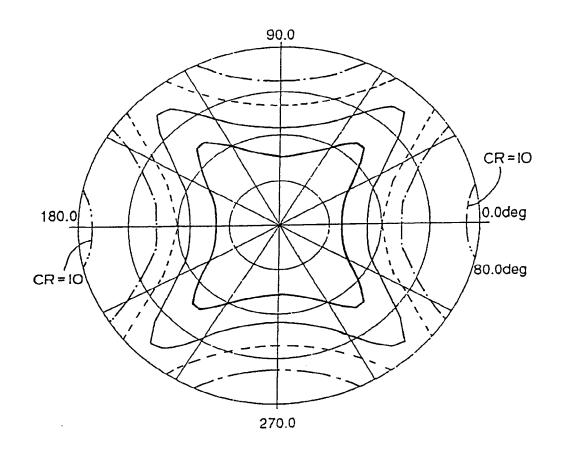
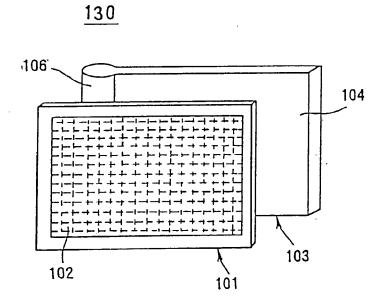


FIG. 87



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FIG.88

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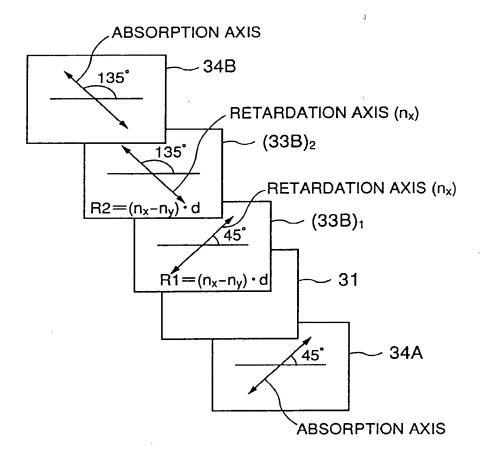


FIG.89

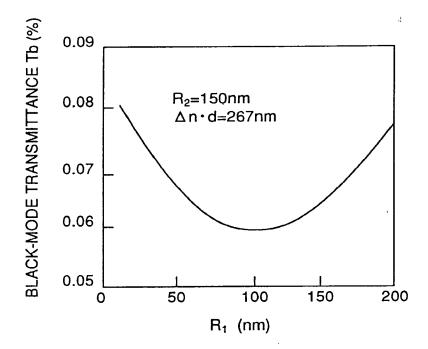


FIG.90

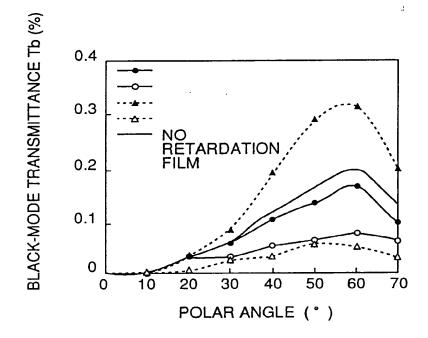


FIG.91A

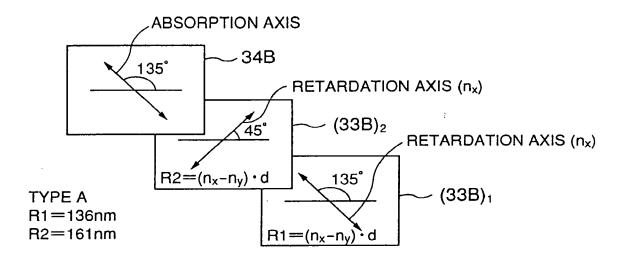
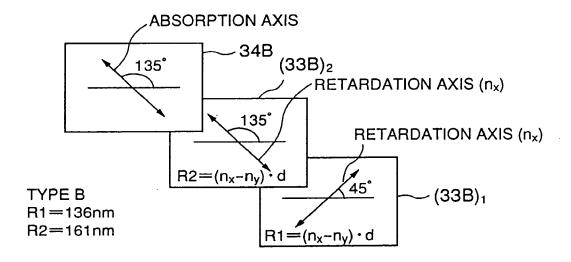


FIG.91B



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FIG.91C

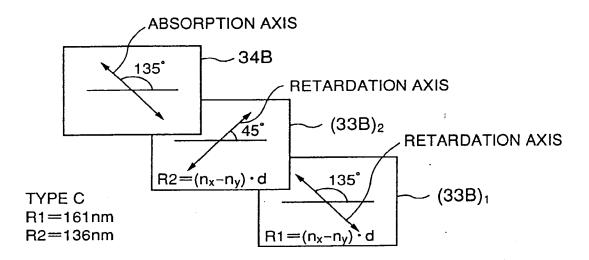
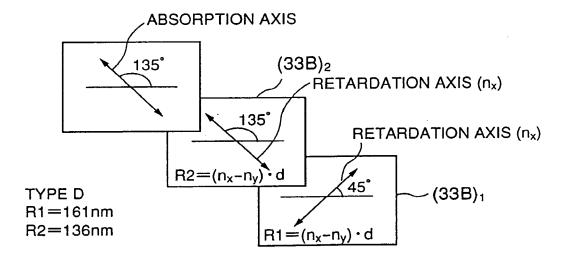
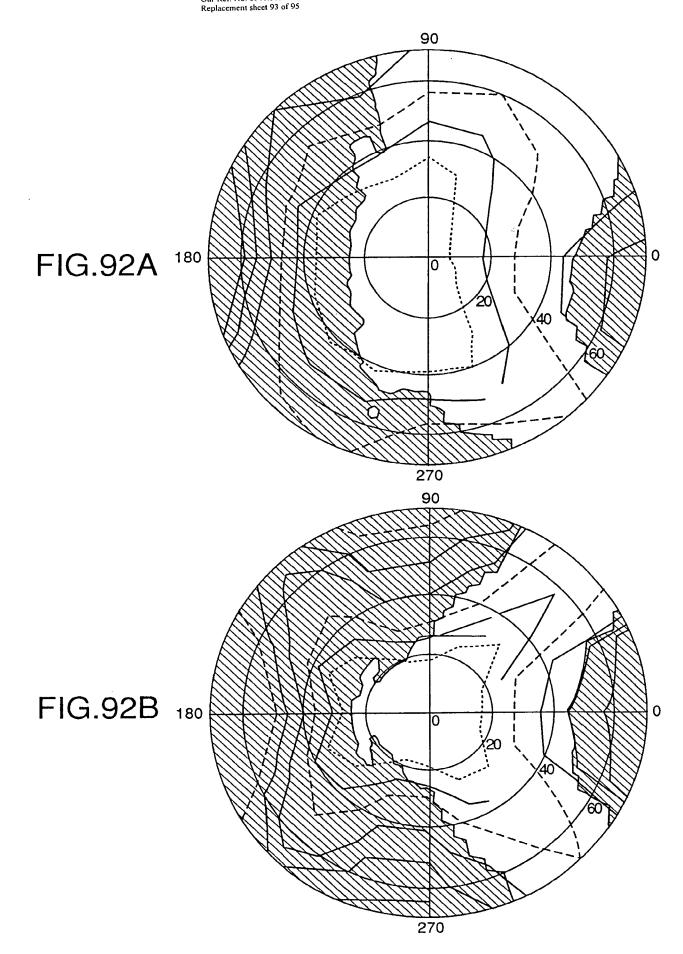


FIG.91D



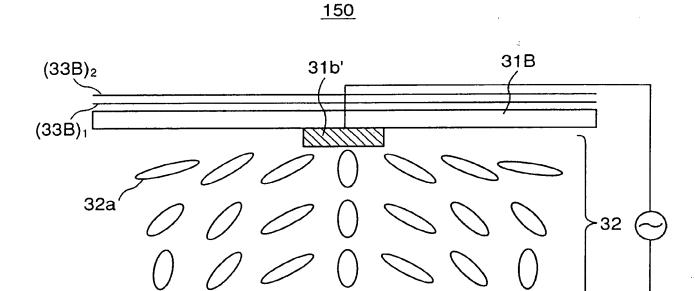


31A

31[′]a′

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FIG.93



31a'

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FIG.94

